DOCUMENT RESUME

ED 260 345 CG 018 438

AUTHOR Chan, Florentius
TITLE The Relationship between Depression, Irrational Beliefs, and Cognitive Distortions.
PUB DATE Apr 85
NOTE 11p.; Paper presented at the Annual Meeting of the Western Psychological Association (65th, San Jose, CA, April 18-21, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Cognitive Processes; *Cognitive Style; College Students; *Depression (Psychology); Higher Education; Influences
IDENTIFIERS Cross Lagged Panel Technique; *Irrational Beliefs

ABSTRACT

Studies have shown that depressed people have a significantly higher number of irrational beliefs and cognitive distortions than nondepressed people. The purpose of this study was to identify the causal relationship among depression, irrational beliefs, and cognitive distortions through the use of cross-lagged panel correlational analysis. On two occasions one month apart, 138 college students were administered a battery of tests that included the Beck Depression Inventory (BDI), the Irrational Belief Test (IBT), and the Subjective Probability Questionnaire (SPQ). The order of these three tests was counterbalanced among subjects using the Latin square design to eliminate the order effect. Results showed that the synchronous correlations between scores on the BDI and scores on the IBT and SPQ were significant, suggesting that depression, irrational beliefs, and cognitive distortions are significantly related. Similarly, the autocorrelations between the same measures in two testing sessions were significant, indicating that the measures are stable and reliable. The cross-lagged panel analysis show that depression, irrational beliefs, and cognitive distortions covaried but were not causally related. The explanation that the relationship among these three variables is spurious seems implausible because previous research has demonstrated that they are related. It appears that there is a reciprocal causal relationship among depression, irrational beliefs, and cognitive distortions, in which no cross-lagged correlation difference would be expected. This explanation is in accord with the cognitive model of depression which suggests that these three variables form a vicious circle. (Author/MCF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED260345

THE RELATIONSHIP BETWEEN DEPRESSION, IRRATIONAL BELIEFS, AND COGNITIVE DISTORTIONS

Florentius Chan, Ph.D.

University of California, San Francisco

Paper Presented at the Meeting of the Western Psychological Association at San Jose, CA, April 1985.

Address All Correspondence to Florentius Chan, Ph.D. UCSF Department of Psychiatry, San Francisco General Hospital, San Francisco, CA 94110.

CG 018438

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Florentius Chan

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Abstract

The purpose of this study was to identify the causal relationship between depression, irrational beliefs, and cognitive distortions through the use of cross-lagged panel correlational analysis. On two occasions separated by one month, 138 college students were administered with a battery of tests that included the Beck Depression Inventory (BDI), Irrational Belief Test (IBT), and Subjective Probability Questionnaire (SPQ). The orders of these three tests were counterbalanced among subjects using the Latin square design to eliminate the order effect.

Results show that the synchronous correlations between scores on the BDI and scores on the IBT and SPQ are significant, suggesting that depression, irrational beliefs, and cognitive distortions are significantly related. Similarly, the autocorrelations between the same measures in two testing sessions are significant, indicating that the measures are stable and reliable. The cross-lagged panel analysis shows that depression, irrational beliefs, and cognitive distortions covary but are not causally related. The explanation that the relationship between these three variables is spurious seems not plausible because previous research has demonstrated that they are related. It appears that there is a reciprocal causal relationship between depression, irrational beliefs, and cognitive distortions, in which no cross-lagged correlation difference would be expected. This explanation is in accord with the cognitive model of depression which suggests that these three variables form a vicious circle.

Studies have shown that depressed people have a significantly higher number of irrational beliefs and cognitive distortions than nondepressed people (e.g , Beck, 1972; Ellis, 1962). One would be interested to know the answer of the chicken and egg question. That is, does feeling depressed lead to more irrational beliefs and cognitive distortions, or do irrational beliefs and cognitive distortions cause depression. The purpose of this study was to investigate the causal relationship between depresson, irrational beliefs, and cognitive distortions through the use of cross-lagged panel correlational analysis (cf. Kenny, 1975).

Method

Subjects

The subjects were 159 students enrolled in introductory psychology at Virginia Polytechnic Institute and State University. Each subject agreed to participate in two 1-hour group testing sessions that were separated by 1-month interval. Subjects received one experimental credit for participation in each group testing and one bonus credit for completion of two group testings. Attrition due to failure to return for the second session resulted in a final sample size of 138 subjects. No significant difference was found on the scores of the tests between subjects who dropped out and those who returned for the second session.

Materials and Procedure

In each of two testing sessions, subjects completed a series of questionnaires including the Beck Depression Inventory (BDI; Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961), the Irrational Belief Inventory (IBT; Jones, 1968), and the Subjective Probability Questionnaire (SPQ; Muñoz, 1977). The BDI is a widely used test which has been shown to be a valid measure of depression among college students (Bumberry, Oliver, & McClure, 1978). The IBT is a test to measure the number of irrational beliefs subjects have. It consists of 100 statements and the responses range from disagree strongly to agree strongly. The SPQ is used to measure the congitive distortions. It consists of 40 positive events and 40 negative events and subjects are to indicate the probability of occurrence on these events.

The orders of these tests were counterbalanced among subjects using the Latin square design to eliminate the order effect.

Results

A Pearson moment product correlational analysis was used to calculate the intercorrelation coefficients of the three tests at both points in time. All intercorrelation coefficients were significant at .05 level. As shown in Figure 1, the synchronous correlations bewteen the BDI and IBT were significant in two testing sessions, suggesting that depression and irrational beliefs are significantly related. Furthermore, there is no significant difference between the synchronous correlations in

the first testing session and the second testing session. Similarly, the autocorrelations between the same measures in two testing sessions were significant, indicating that the measures are stable and reliable. Thus the assumptions of stationarity and stability were met for the use of the cross-lagged panel correlational analysis.

Insert Figure 1 Here

Tests for spuriousness were next conducted. The cross-lag differential of the BDI and IBT was tested for significance, using the Pearson-Filon test (see Kenny, 1975). The obtained z score was not significant, indicating that the null hypothesis of spuriousness could not be rejected. That is, neither depression nor irrational beliefs could be considered as a cause of the other.

Figure 2 depicts the correlations between the BDI and SPQ in two testing sessions. Both the synchronous correlations and autocorrelations were significant. However, the cross-lag differentials of the BDI and SPQ (positive and negative events) were not significant, suggesting that there is no causal relation between these two variables.

Insert Figure 2 Here

Discussion

The present study was designed to investigate the causal relationsip between depression, irrational beliefs, and cognitive distortions. Results show that depression and the other two variables covary but are not causally related. One possible explanation is that the relationship is spurious and is probably due to other unknown variables. However, this explanation is not tenable because many independent studies have demonstrated that depression and irrational beliefs or cognitive distortions are significantly related (e.g., Jones, 1968; Muñoz, 1977).

The other explanation is that there may be a reciprocal causal relationship between depression and irrational beliefs or cognitive distortions, such that no cross-lagged correlation difference could be found. In a similar study using the cross-lagged panel analysis, no causal relationship was found between pleasant activities and depression (Sweeney, Shaeffer, & Golin, 1982). These results seem to suggest that depression and irrational beliefs or cognitive distortions form a vicious circle. This interpretation is in accord with Beck's (1976) cognitive theory of depression that mood and cognitions are interacting with one another.

On the other hand, one has to be aware of the limitations of the cross-lagged panel correlational analysis. One of the limitations is that this analysis is a low-power test which requires large numbers of subjects to identify possible true cross-lagged correlation difference (see Rogosa, 1980). Thus the finding of no significant cross-lag difference might due to the

methodological problem. Further studies are necessary to test these explanations.

References

Beck, A. T. (1972). Depression: Causes and treatment. Philadelphia: University of Pennsylvania.

Beck, A. T. (1976). Cognitive therapy and the emotional disorders. New York: International Universities Press.

Beck, A. T., Ward, C. H., Mendelsohn, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 561-571.

Bumberry, W., Oliver, J. M., & McClure, J. N. (1978). Validation of the Beck Depression Inventory in a university population using psychiatric estimate as the criterion. Journal of Consulting and Clinical Psychology, 46, 150-155.

Ellis, A. (1962). Reason and emotion in psychotherapy. New York: Lyle Stuart.

Jones, R. G. (1968). A factored measure of Ellis' irrational belief system, with personality and maladjustment correlates. Unpublished doctoral dissertation. Texas Tech University, Lubbock.

Kenny, D. A. (1975). Cross-lagged panel correlation: A test for spuriousness. Psychological Bulletin, 82, 887-903.

Muñoz, R. F. (1977). A cognitive approach to the assessment and treatment of depression (Doctoral dissertation, University of Oregon, 1977). Dissertation Abstracts International, 38, 2873B. (University Microfilms No. 7726, 505,154).

Rogosa, D. (1980). A critique of cross-lagged correlation. Psychological Bulletin, 88, 245-258.

Sweeney, P. D., Shaeffer, D. E., & Golin, S. (1982). Pleasant events, unpleasant events, and depression. Journal of Personality and Social Psychology, 43, 136-144.

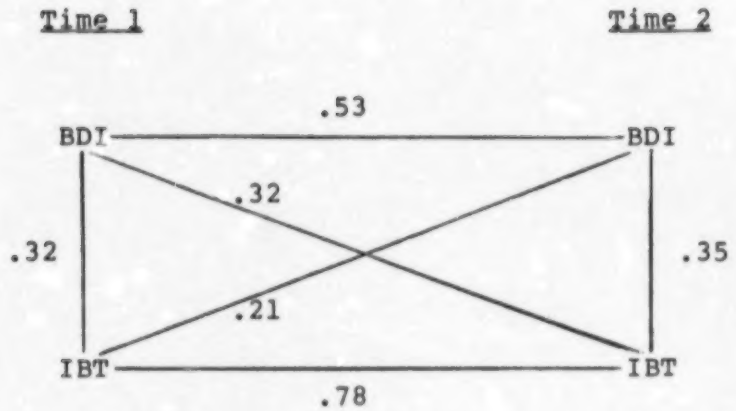

Figure 1. Correlations between Beck Depression Inventory (BDI) and Irrational Belief Inventory (IBT) in two testing sessions.

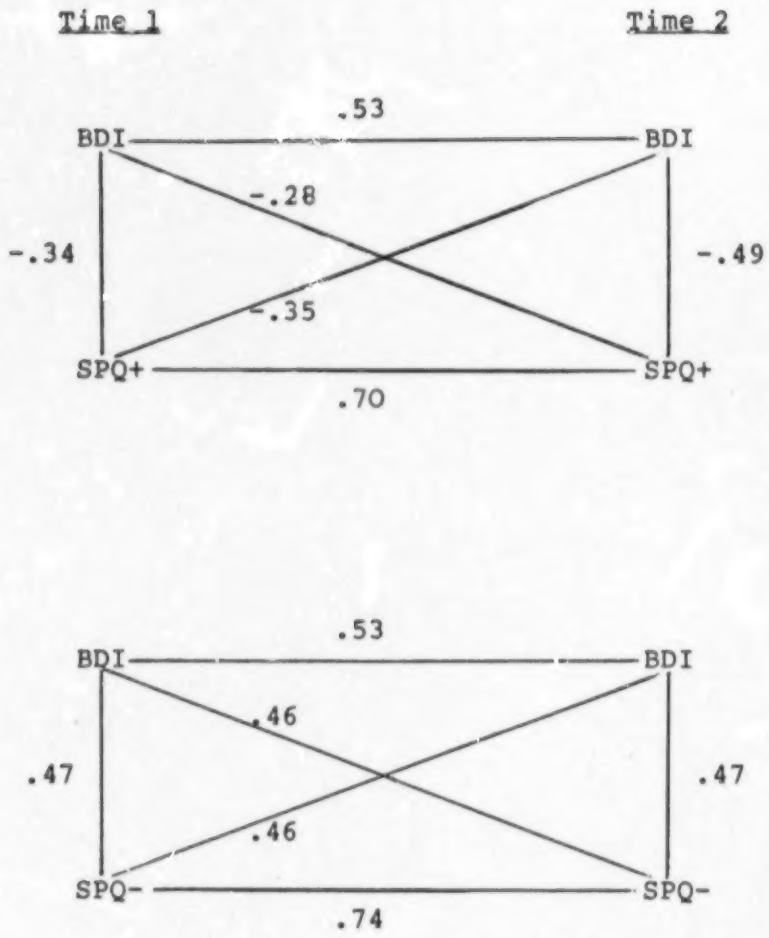

Figure 2. Correlations between Beck Depression Inventory (BDI) and Subjective Probability Questionnaire (SPQ) positive events (+) and negative events (-) in two testing sessions.